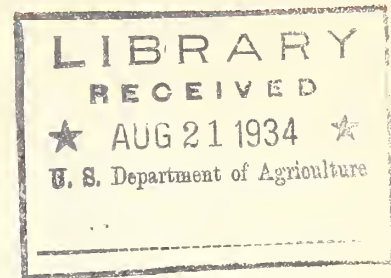


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UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
Office of the Chief Washington



August 1, 1934.

CIRCULAR

Transmission of pressure change data in 4-hourly airways weather reports and the transmission of 4-hourly "pressures reduced to the 5000-foot plane" by selected stations in the Western Plateau Region.

The present Circular supersedes the Circular, without title, dated July 5, 1934, concerning transmission of pressure changes to airways forecast centers. (The Circular of July 5, 1934, should therefore be cancelled). Beginning about September 1, 1934, and continuing at least 13 months, certain selected stations in the Western Plateau and Mountain Region will transmit "pressures reduced to the 5000-foot plane" in their 4-hourly airways weather reports, enciphering these data in conjunction with the pressure change data. The Weather Bureau Airport Station, Oakland, Calif., has been designated to carry out the 5000-foot pressure project. Stations which are not selected to transmit "5000-foot pressures" will merely transmit the pressure change data, while stations selected for this purpose will transmit both the pressure change data and the "5000-foot pressures." The latter stations will be notified regarding their selection by correspondence, wherein the necessary instructions for reducing the pressures to the 5000-foot plane will also be given. Instructions for the enciphering and transmission of the data in question follow, and are effective beginning September 1, 1934.

In the transmission of airways weather reports nearest to the hours of midnight, 4 and 8 a. m., noon, 4 and 8 p. m., E. S. T., symbols or code words representing the pressure change (and the "pressure reduced to the 5000-foot plane", at selected stations only) will be added immediately following the last item of the regular report as defined on Form 1133-Aer. or Circular N. Somewhat different methods of representing the data in question will be used, depending upon whether the transmission is by means of teletype and/or radio, or by means of telegraph, and further depending upon whether the station has or has not a barograph.

Case 1. Transmission by teletype or radio sequence reports.

(a) Station has a barograph.

The net change in the station pressure for the three hours immediately preceding the observation will be indicated by figures representing the proper number of hundredths of an inch.

Following this without a space will be a letter taken from the following list (formed of initial letters of the 1931 Weather Code for pressure characteristic, pp. 5, 37-46) indicating the pressure characteristic:

- | | |
|-------------------------------------|------------------------|
| (A) ϕ Rising, then falling |) Barometer same or |
| (B) Rising, then steady |) higher than 3 hours |
| (D) Unsteady, rising |) previous to obser- |
| (E) Steady, or steadily rising |) vation. |
| (G) Falling, or steady, then rising |) |
| | |
| (M) Falling, then rising |) Barometer lower than |
| (N) Falling, then steady |) 3 hours previous to |
| (R) Unsteady, falling |) observation. |
| (S) Steadily falling |) |
| (T) Steady, or rising, then falling |) |

(A) ϕ The characteristic "rising, then falling" is indicated by the absence of a consonant, the letter (A) to be used in these cases.

If no net change occurs, the figure naught (zero) will be sent followed by the proper characteristic letter.

If a station in the Western Plateau region has been selected to transmit the "pressure reduced to the 5000-foot plane", this pressure will be indicated by two numbers representing the hundredths of an inch in the "5000-foot pressure" (whole inches omitted) immediately following the characteristic letter without space or oblique.

Examples:

- (1) Station which does not transmit "5000-foot pressure."
"7R" signifies "Barometer unsteady, 0.07
inch lower than 3 hours previously."
- (2) Station which does transmit "5000-foot pressure."
"10S79" signifies "Barometer steadily falling,
0.10 inch lower than 3 hours previous; pres-
sure at 5000-foot plane 24.79 inches."

- (b) Station has no barograph.

The net station pressure change for the three hours preceding the observation will be given in figures representing the proper number of hundredths of an inch.

Immediately following this will be given a plus (+) or minus (-) sign to indicate the direction of the pressure change. The use of the letters "P" and "M" for indicating plus and minus are hereby discontinued. Zero change will be indicated by the word "none" where the station does not transmit the "5000-foot pressure." If the station does transmit the "5000-foot pressure", zero change will be indicated by a naught (zero) followed by an oblique.

If the "5000-foot pressure" is to be transmitted, the hundredths of an inch (omitting whole inches) in this pressure will be indicated following the (+) or (-) sign (or oblique if the change is zero) without a space between them.

Examples:

- (1) Station which does not transmit "5000-foot pressure."

"4+" indicates "Barometer rose net amount of 0.04 inch in the last three hours."

- (2) Station which does transmit "5000-foot pressure."

"8-88" signifies "Barometer fell net amount of 0.08 inch in the last three hours; pressure at

5000-foot plane 24.88 inches." "0/06" signifies
"Net change in barometer zero; pressure at 5000-
foot plane 25.06 inches."

The foregoing will supersede paragraph 27 of the Circular "Instructions for Making Four-Hourly Reports", dated July 15, 1933. Paragraph 27 in that Circular should be deleted and proper reference to this Circular made.

Case 2. Transmission by telegraph in code or as special messages by radio.

(a) Station has a barograph.

The station pressure change and pressure characteristic will be enciphered in accordance with instructions given in paragraphs 33 to 39, incl., of the 1931 Weather Code, using the code words given on pages 37 to 46 of the same code. Stations not transmitting the "5000-foot pressure" will use the appropriate code words for 100 or 0 degrees, while stations transmitting the "5000-foot pressure" will encipher this datum (hundredths only, omitting whole inches) by the code words corresponding to a maximum (or minimum) temperature numerically equal to the "5000-foot pressure" (hundredths only).

Examples:

(1) Station which does not transmit "5000-foot pressure."

"Debt" signifies "Barometer unsteady, but 0.03 or 0.04 inch higher than

three hours previous."

- (2) Station which does transmit "5000-foot pressure."

"Deserve" signifies "Barometer unsteady but 0.03 or 0.04 inch higher than three hours previous; pressure at 5000-foot plane 24.84 inches."

- (b) Station has no barograph.

The net 3-hourly station pressure change and the direction of the change will be indicated by selecting either an "F" (for rising pressure) or an "S" (for falling pressure) word from pages 40 or 45 of the 1931 Weather Code. Stations not transmitting the "5000-foot pressure" will use the appropriate code words for 100 or 0 degrees, while stations transmitting the "5000-foot pressure" will encipher this datum by using the "F" or "S" code words corresponding to a maximum (or minimum) temperature numerically equal to the 5000-foot pressure (hundredths only, omitting whole inches.)

Examples:

- (1) Station does not transmit "5000-foot pressure."

"Fish" signifies "Barometer rose net amount of 0.05 or 0.06 inch during previous three hours."

- (2) Station does transmit "5000-foot pressure."

"Finance" signifies "Barometer rose net

amount of 0.05 or 0.06 inch during previous three hours; pressure at 5000-foot plane 24.62 inches."

If the 3-hourly pressure change is 0.10 inch or more, it will be enciphered as "0.07 or more", but an appropriate "K" word will be added as the next word to indicate the total change. "K" words appear on page 47 of the 1931 Weather Code (see paragraph 39 and following example, 1931 Weather Code).

Stations which do not make hourly observations but do make 4-hourly observations and have no barograph will compute the net 3-hourly pressure change as $\frac{3}{4}$ of the change between the previous 4-hourly station pressure and the current station pressure.

When reports are to be relayed from the telegraph to the teletype or radio, the code words in question must be converted to the proper numerical and letter code described above (Case 1), and vice versa.

The foregoing will supersede paragraph 17, Section II of the Circular, "Instructions for Making Four-Hourly Reports," dated July 15, 1933. Paragraph 17 in that Circular should be deleted and proper reference to this Circular made.

Copies of this Circular are being furnished to all first-order and airport stations concerned. General supervising stations will be furnished with sufficient copies for distribution to all Weather Bureau substations equipped with teletype or radio on the airways under their supervision. Sufficient copies will be furnished to the Department of Commerce

for distribution to their stations and officials.

Nothing in this Circular will be construed as affecting the SGL D&A reports.

C. C. Clark,
Acting Chief of Bureau.